Community forests can contribute more to rural Nepalese livelihoods

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Timber provides substantial household income in Mustang District

Community forests can contribute more to rural Nepalese livelihoods

It is increasingly documented that forests and other environmental resources are important for rural livelihoods in the global south (Angelsen et al. 2014). And, over the past 20 years there has been a trend of decentralizing forest management in the same parts of the world (Sunderlin et al., 2008). Objectives for forest decentralization include livelihood improvement and sustainable resource management, and yet there is a dearth of empirically based analyses looking into the sustainability of local natural resource management. Studies were undertaken in four sites across the physiographic zones of Nepal where forests are managed by local communities: the High Mountains (Mustang), the peri-urban Middle Hills (Kaski), the Lowlands (Chitwan) and the remote Middle Hills (Gorkha). The first three sites were selected in 2005, the fourth in 2007. Data collection involved (i) quarterly interviews used to construct 2162 individual total annual household income accounts, including 427 with three waves and 247 with two waves; (ii) repeated measurements in 240 randomly located permanent forest sample plots that yielded information on forest growth (in the first three sites); and (iii) aerial and satellite image data analysis that yielded long-term changes in area under forest cover.

Three successive projects studied community based forest management in Nepal: Community based forest and tree management in the Himalayas I and II (grant 104.Dan. 8.L.716), and Community based forest management in the Himalayas (grant 10-015LIFE). These projects are known as ComForM I-III and were implemented 2003-2014. Partners from ComForM I were the Department of Food and Resource Economics at

Policy Recommendations

- Rural people's access to forest and environmental products needs to be maintained or improved to ensure and enhance their livelihoods through increased incomes
- Increased local timber harvest should be allowed where possible, taking into consideration local priorities and limits for sustained yield of timber and firewood.
- The role of the forest bureaucracy should focus less on control and more on the provision of technical knowledge to support locally determined forest management ambitions operating within the limits of sustained yield.

the University of Copenhagen, Denmark (the research group was until 2012 placed at the Danish Centre for Forest and Landscape) and the Institute of Forestry at Tribhuvan University, Nepal. The Danida funded Natural Resource Management Sector Assistance Programme (NARMSAP) was a partner in ComForM I and the Department of Forest Research and Survey within the Ministry of Forests and Soil Conservation, Nepal, was a partner in ComForM II and III. Associate partners in ComForM II were the Federation of Community Forest User Groups (FECOFUN) and the Himalayan Grassroots Women's Natural Resource Management Association (HIMAWANTI-Nepal); associate partners in ComForM II and III were ForestAction and Kathmandu Forestry College. Publications arising from the project can be accessed at http://ifro.ku.dk/english/research/projects/projects_development/comform/

Objective

The development objective of ComForM I - III was to contribute knowledge towards improved livelihoods through sustainable and equitable management of forest resources in Nepal. An immediate objective was capacity development of the partners.

Results

Environmental income is essential for rural Nepalese livelihoods

Both wealthy and poor rural households earned income from environmental products. These are harvested from wild or uncultivated natural resources. In 2012 the average relative cash and subsistence contribution from forest and non-forest environmental income to rural livelihoods was 9%. Rural poor households depended relatively more on environmental income, which in turn reduced income inequalities. Yet, wealthy households earned the highest environmental incomes in absolute terms. The contribution of forest income was relatively more important in the High Mountains and remote Middle Hills sites where the forest area per household is higher than at lower altitudes, while it was less important in both the peri-urban Middle Hills and the Lowlands where alternative income generation opportunities are better (Figure 1). The contribution of non-forest environmental income, on the other hand, was lower in the High Mountains than at lower altitudes. Thus, at all sites some kind of environmental income is important for rural livelihoods.

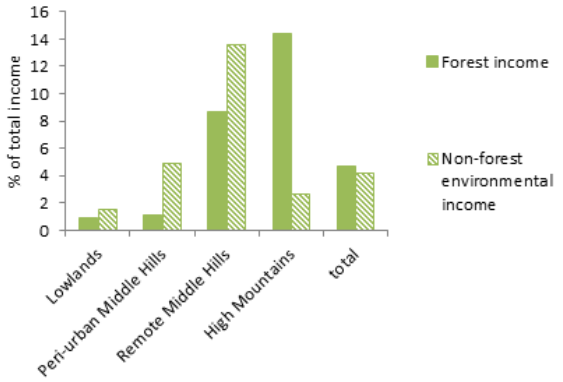

Figure 1. Average relative contribution (%) of forest and non-forest income to total income in 2012; N=805.

Forests could yield higher income

Forests appear to have neither served as a temporary income gap remedy, nor to have provided a pathway out of poverty. Part of the reason such functions were not observed may be the quite rigid and conservative national restrictions on forest product harvest.

Communities need permission to cut live trees and local forest authorities generally favour forest conservation rather than exploitation in areas managed by local communities. Given the standing stock in the High Mountains and Lowlands sites (measured in 2005 and 2010), household income could have been significantly higher. Figure 2 illustrates by how much household income could increase if local forest users were allowed to sell timber in addition to firewood and if the annual allowable cut was set as 80% of the increment to allow for a sustained supply. Timber harvest in the peri-urban Middle Hills site was higher than the increment during the period observed, while measurements were not undertaken in the remote

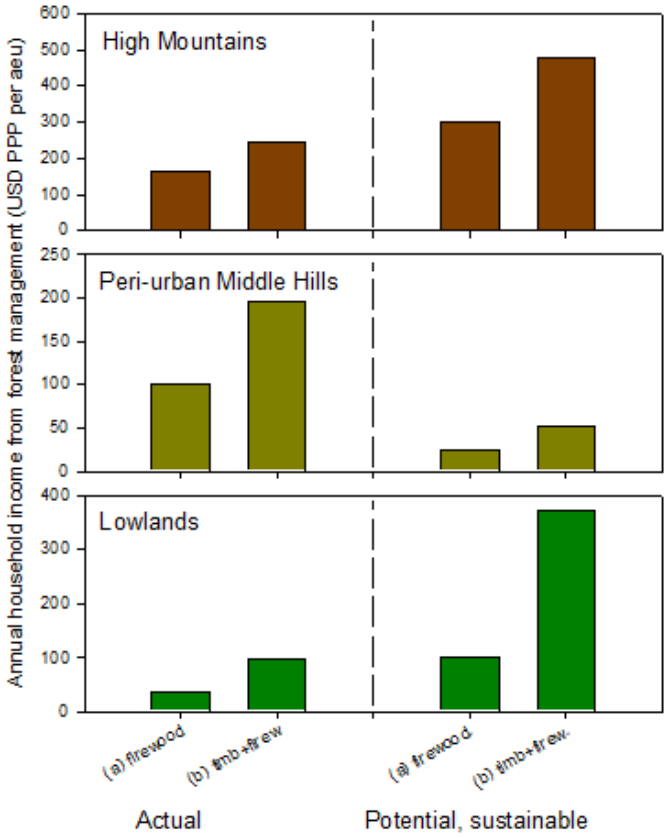

Figure 2. Actual and potential household income (USD PPP) per adult equivalent unit (aeu) from forest management. Income data are household averages from 2006 and 2009. Forest stocking data are from 2005 and 2010. The aeu metric enables comparison across households. Potential firewood is calculated as 80% of total annual increment and in the potential timber & firewood category all woody biomass with diameters larger than 10 cm is priced as timber and the remaining as firewood. Based on Meilby et al. 2014.

Middle Hills site. It could be tempting to assert that local forest management in the peri-urban Middle Hills is not able to withstand the pressure from the nearby urban center, but this was not the case.

Local forest use is sustainable

Data from the permanent sample plots collected in 2005, 2010 and 2013 show that the harvest of woody biomass in the High Mountains and Lowlands sites was within sustainable limits during both periods. The harvest in the peri-urban Middle Hills site was higher than the annual increment from 2005 to 2010, but during the period from 2010 to 2013 the outtake from the forest was drastically reduced and biomass was again accumulating. This is supported by analyses of changes in forest cover using aerial and satellite imagery covering the period 1998 – 2012 (Figure 3). Interviews revealed that during the two decades prior to 2005 forest harvesting had been very low. Thus, the period between 2005 and 2010 was a time of sustainable use and part of a silviculturally sound, cyclical thinning and regrowth strategy (Rutt et al. 2014).

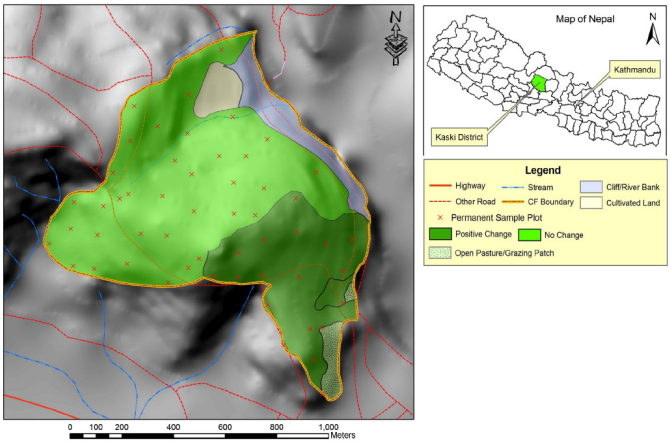

Figure 3. Changes in forest cover in the peri-urban Middle Hills site (B); from Rutt et al (2014).

Local forest managers are capable

The research found local forest managers to be knowledgeable and inclined towards sustained forest management. The entire High Mountains site is a Conservation Area overseen by a local NGO and the forests in the other three sites are managed by local users under the national Community Forestry Programme. Although the official management approaches in the sites varied, local users were involved in the de facto forest management in all sites and in all sites they were found to balance the harvest of timber and firewood with the availability, based on their own observations. The users were aware of opportunities for cyclical forest management, i.e. that a period of timber harvest needs to be followed by a regeneration period.

Conclusions

- Forest and non-forest environmental income is important for rural livelihoods across the physiographic regions of Nepal
- Environmental incomes cannot be entirely substituted by other types of income
- Commercial timber harvest could be increased significantly within sustainable limits in two of the three study sites where forest measurements were undertaken. Local incomes could thereby be increased
- Local forest users are capable of managing forests sustainably

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Firewood is important to most households in Nepal, especially in more remote areas

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